improved correlation with the sequence listing submitted concurrently herewith. Claims 1-6 have been cancelled without prejudice or disclaimer. Claims 7-11 are pending and under consideration. An Attorney's Statement relating to the contents of computer readable copies of the Sequence Listing is filed concurrently herewith. No new matter has been included.

At page 2, paragraph 2 of the Office Action, the Examiner indicated the CFR, sequence listing, and letter submitted July 1, 2002 does not comply with the sequence rules. Therefore, the following are enclosed herewith: (1) a paper copy of a Sequence Listing containing no errors and corresponding to the sequences included in the subject application; (2) a diskette including a file entitled "sequence2.ST25.doc" corresponding to (1), above, in computer-readable format; and (3) a newly executed statement Regarding Sequence Listings stating that the Sequence Listing submitted is in accordance with 37 C.F.R. §§ 1.821(c) and (e) and 1.825 and that the content of the paper and computer readable copies of the Sequence Listing are the same. The statement further includes that this submission, is filed in accordance with 37 C.F.R. §1.821(g), and does not include new matter. The entry of the Sequence Listing is respectfully requested.

At page 3 of the Office Action, the claims are rejected under 35 U.S.C. §112, first paragraph. The Attorney Statement filed concurrently herewith is deemed to render this rejection moot. Accordingly, this rejection is respectfully requested to be withdrawn.

At pages 3-4 of the Office Action, claims 1-3 and 7-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Muir et al. (U.S. Patent No. 5,891,435). This rejection is respectfully traversed in view of the following arguments.

The rejection of claims 1-3 is deemed moot in view of the cancellation of these claims.

Claims 7-11 are directed to the immunological prevention of the type 1 diabetes mellitus using a recombinant vacinia virus incorporated with a gene for coding glutamic acid decarboxylase (GAD). Namely, the present invention is directed to an immunogene therapy of the type 1 diabetes mellitus.

The GAD expressed from the recombinant vacinia virus of the present invention inhibits the function of T-cells by an immune tolerance. Thereby the ß cell destruction due to T cells can be prevented, which results in the prevention or delay of the type 1 diabetes mellitus.

It is not known in Muir et al that the type 1 diabetes mellitus can be prevented by inducing the immune tolerance with GAD expressed from the recombinant vaccinia virus. More precisely, the immune therapy which protects the ß cell destruction by inhibiting the function of

T-cell is not known in Muir et al.

Furthermore, the immune therapy of the present invention should not be regarded as routine lab work. Even the skilled person in the art could not expect the induction of T cell tolerance by expressing GAD without the experimental testing of the present invention. This is partially due to the prevention of the type 1 diabetes mellitus seriously depending on the injection time and dose of the vaccine. In the present invention, the inventors optimize the injection time and dose of the vaccine with several experimental tests to prevent the type 1 diabetes mellitus, and finally found that the prevention mechanism is related to the induction of immune tolerance of the T cell.

At page 4 of the Office Action, claims 4-6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Muir et al., further in view of Moss et al., (Nucleic Acids Research 1990, 18:4285-4286). This rejection is deemed moot in view of the cancellation of claims 4-6.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 3/3/03

By: _____

Michael D. Stein
Registration No. 37,240

700 Eleventh Street, NW, Suite 500
Washington, D.C. 20001
(202) 434-1500

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please AMEND the paragraph beginning at page 20, line 10, as follows:

Total RNA was isolated from splenocytes of RVV-GAD65 immunized mice at 1, 2 and 3 weeks after immunization using a RNA extraction kit (Qiagen Inc, Mississauga, ON, Canada) according to the manufacturer's protocol. Two μg of total RNA was converted to cDNA using Superscript II reverse transcriptase (Gibco BRL, Gaithersburg, MD) and oligo (dT). PCR was performed using specific primers for various cytokine genes(H.S. Jun et al., J. Exp. Med. 189, 347-358, 1999). The primers used were as follows:

IL-2: sense- CTTGCCCAAGCAGGCCACAG (SEQ ID NO: 1)
Antisense- GAGCCTTATGTGTTGTAAGC (SEQ ID NO: 2)
IFN-γ sense- AGCTCTGAGACAATGAACGC (SEQ ID NO: 3)
Antisense- GGACAATCTCTTCCCCACCC (SEQ ID NO: 4)
IL-4: sense- TCTTTCTCGAATCTACCAGG (SEQ ID NO: 5)
Antisense- CATGGTGGCTCAGTACTACG (SEQ ID NO: 6)
IL-10: sense- CAAACAAAGGACCAGCTGGAC (SEQ ID NO: 7)
Antisense- TTGACCTCAGCGCTGAGTTG (SEQ ID NO: 8)

Please AMEND the paragraph beginning at page 21, line 4, as follows:

Hypoxanthine phosophoribosyl tranferase(HPRT) mRNA was amplified as an internal standard, the primers used for HPRT were as follows.

Sense- GTAATGATCAGTCAACGGGGGAC (SEQ ID NO: 9)
Antisense- CAAGCAAGCTTGCAACCTTAACCA (SEQ ID NO: 10)

IN THE CLAIMS:

Please CANCEL claims 1-6 without prejudice or disclaimer.